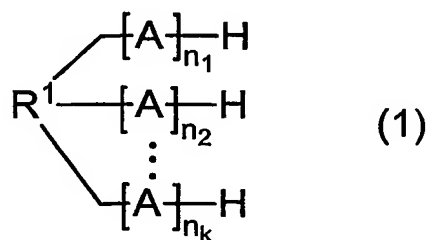
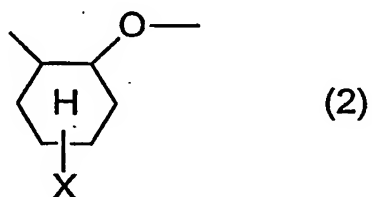


## Claims

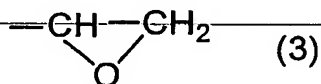
1. A method for producing a pattern formation mold, characterized in that the method comprises: a first step of  
 5 applying to a substrate a radiation-sensitive negative-type resist composition containing an epoxy resin represented by formula (1):

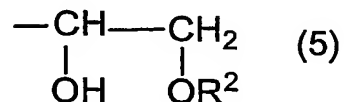
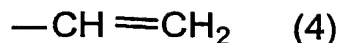


- (wherein  $\text{R}^1$  represents a moiety derived from an organic compound having  $k$  active hydrogen atoms ( $k$  represents an  
 10 integer of 1 to 100); each of  $n_1$ ,  $n_2$ , through  $n_k$  represents 0 or an integer of 1 to 100; the sum of  $n_1$ ,  $n_2$ , through  $n_k$  falls within a range of 1 to 100; and each of "A"s, which may be identical to or different from each other, represents an oxycyclohexane skeleton represented by formula (2):



- 15 (wherein  $\text{X}$  represents any of groups represented by formulas (3) to (5):





(wherein  $\text{R}^2$  represents a hydrogen atom, an alkyl group, or an acyl group), and at least two groups represented by formula (3) are contained in one molecule of the epoxy resin)), along  
 5 with a radiation-sensitive cationic polymerization initiator, and a solvent for dissolving the epoxy resin therein; a second step of drying the substrate coated with the radiation-sensitive negative-type resist composition, to thereby form a resist film; a third step of selectively  
 10 exposing the formed resist film to an active energy beam according to a desired pattern; a fourth step of heating the exposed resist film so as to enhance a contrast of a pattern to be formed; a fifth step of developing the heated resist film, to thereby remove the unexposed area of the resist film  
 15 through dissolution, thereby forming a patterned layer; and a sixth step of applying to the patterned layer a material other than that of the patterned layer such that spaces present in the patterned layer are filled, at least to some height, with the material, to thereby form a second layer,  
 20 and removing the second layer, to thereby yield a pattern formation mold.

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2. A method for producing a pattern formation mold according to claim 1, wherein the second layer is formed

through metal plating.

3. A method for producing a pattern formation mold according to claim 1, wherein the second layer is formed by casting a photo-curable or heat-curable resin and curing the resin by light or heat.

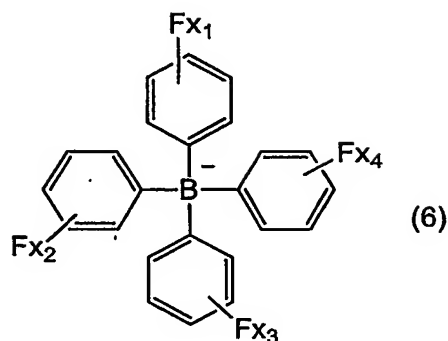
4. A method for producing a pattern formation mold according to any one of claims 1 to 3, wherein the resist film formed by drying the radiation-sensitive negative-type resist composition has a softening point falling within a range of 30 to 120°C.

5. A method for producing a pattern formation mold according to any one of claims 1 to 4, wherein the epoxy resin has a softening point of 30°C or higher.

6. A method for producing a pattern formation mold according to any one of claims 1 to 5, wherein the radiation-sensitive cationic polymerization initiator comprises one or more sulfonium salts.

7. A method for producing a pattern formation mold according to any one of claims 1 to 6, wherein the radiation-sensitive cationic polymerization initiator has one or more anion moieties, at least one species of the anion moieties being  $\text{SbF}_6^-$ .

8. A method for producing a pattern formation mold according to any one of claims 1 to 7, wherein the radiation-sensitive cationic polymerization initiator has one or more anion moieties, at least one species of the anion moieties being a borate represented by formula (6):



(wherein each of  $x_1$  to  $x_4$  represents an integer of 0 to 5, and the sum  $x_1 + x_2 + x_3 + x_4$  is 1 or more).

9. A method for producing a pattern formation mold according to any one of claims 1 to 8, wherein the active  
5 energy beam is an X-ray having a wavelength of 0.1 to 5 nm.

10. A method for producing a pattern formation mold according to any one of claims 1 to 9, wherein the resist film has a thickness of at least 50  $\mu\text{m}$ .